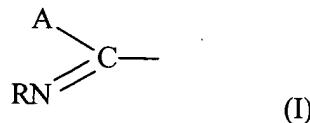


We claim:

1. A composition comprising:

(a) a fluoropolymer comprising interpolymerized units derived from a nitrogen-containing cure site monomer; and

5 (b) a curative comprising a compound having the general formula  $X-Y(-Z)_n$ , wherein X is a moiety of Formula I:



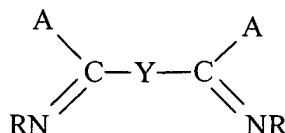
wherein A is  $NHNH_2$  or  $NHOH$  and wherein each R is H or an alkyl, alkenyl, aryl, alkaryl, or alkenylaryl group, Y is a bond or a linking group, Z is H or an alkyl, alkenyl, aryl, alkaryl, or alkenylaryl group, which may be non-fluorinated, partially-fluorinated, or perfluorinated, or a moiety according to Formula I, which may be the same or different than X, and n is an integer from 1 to 3;

10 or a salt thereof, or the precursors of the salt thereof provided separately or as a mixture.

2. The composition of claim 1 wherein the curative is a reaction product of nitrile and  
15 hydrazine, which optionally is fluorinated or perfluorinated.

3. The composition of claim 1 wherein the curative is a reaction product of nitrile and hydroxylamine, which optionally is fluorinated or perfluorinated.

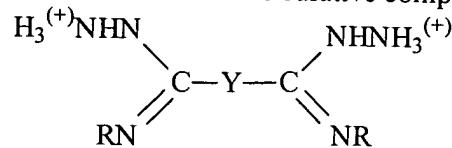
4. The composition of claim 1 wherein the curative comprises a compound of the formula:



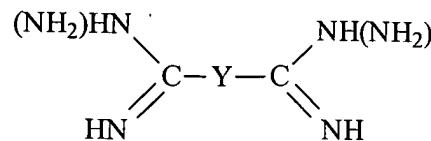
20 wherein Y is selected from a linking group and  $CX_2OCX_2$ , each X is independently H, F, or Cl, each R is independently selected from H, a C1-C10 alkyl or alkenyl, a C6-C15 aryl, a C7-C12 aralkyl, or alkenaryl, and wherein A is  $NHOH$  or  $NHNH_2$ .

5. The composition of claim 1 wherein Z is X.

6. The composition of claim 1 wherein the curative comprises a compound of the formula:



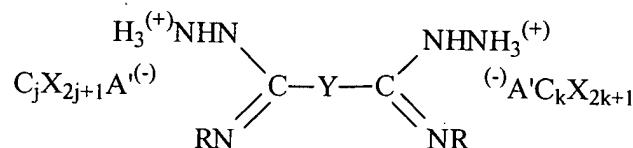
7. The composition of claim 1 wherein the curative comprises a compound of the formula:



5 8. The composition of claim 7 wherein Y is selected from  $-(\text{CF}_2)_n-$  wherein n is 1 to 10.

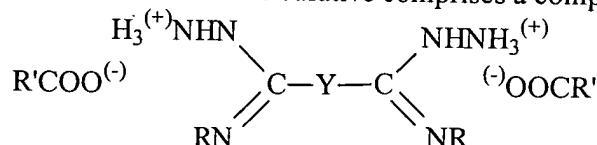
9. The composition of claim 8 wherein n is 4.

10. The composition of claim 1 wherein the curative is selected from the formula:



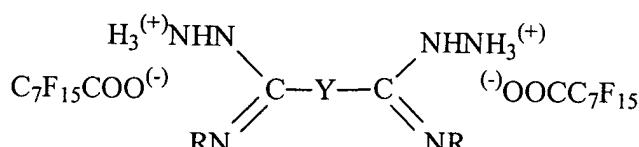
wherein j and k range from 1 to about 12, n is 1 to 5, Y is  $\text{CX}_2\text{OCX}_2$ , each X is independently H, F, or Cl, , and A' is an anion.

11. The composition of claim 1 wherein the curative comprises a compound of the formula:



wherein R' is an alkyl, alkenyl, aryl, alkaryl, or alkenylaryl group, which may be non-fluorinated, partially-fluorinated, or perfluorinated.

15 12. The composition of claim 1 wherein the curative comprises a compound of the formula:



wherein Y is a linking group.

13. The composition of claim 12 wherein Y is selected from  $(\text{CF}_2\text{OCF}_2)_m$  wherein m is an integer from 1 to 10.

20 14. The composition of claim 13 wherein m is 3.

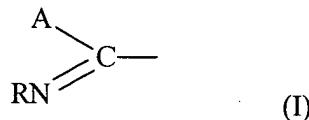
15. The composition of claim 1 wherein the fluoropolymer is perfluorinated.
16. The composition according to claim 1 wherein the fluoropolymer comprises interpolymerized units derived from (i) tetrafluoroethylene, and (ii) a fluorinated comonomer which may be perfluorinated, and optionally (iii) one or more perfluorovinyl ethers.
- 5 17. A composition according to claim 16 wherein the fluorinated comonomer is selected from perfluoroolefins, partially-fluorinated olefins, non-fluorinated olefins, vinylidene fluoride, and combinations thereof.
18. A composition according to claim 1 wherein said cure site monomer comprises a nitrile-containing monomer.
- 10 19. A composition according to claim 18 wherein said cure site monomer is a compound of the formula  $\text{CF}_2=\text{CFO}(\text{CF}_2)_LC\text{N}$ ;  $\text{CF}_2=\text{CFO}(\text{CF}_2)_u\text{OCF}(\text{CF}_3)\text{CN}$ ;  $\text{CF}_2=\text{CFO}[\text{CF}_2\text{CF}(\text{CF}_3)\text{O}]_q(\text{CF}_2\text{O})_y\text{CF}(\text{CF}_3)\text{CN}$ ; or  $\text{CF}_2=\text{CF}[\text{OCF}_2\text{CF}(\text{CF}_3)]_r\text{O}(\text{CF}_2)_t\text{CN}$ ; wherein  $L = 2-12$ ;  $q = 0-4$ ;  $r = 1-2$ ;  $y = 0-6$ ;  $t = 1-4$ , and  $u = 2-6$ ; perfluoro(8-cyano-5-methyl-3,6-dioxa-1-octene), and  $\text{CF}_2=\text{CFO}(\text{CF}_2)_5\text{CN}$ .
- 15 20. A composition according to claim 1 further comprising a filler, optionally selected from fluoropolymer filler, carbon black, and combinations thereof.
21. The composition of claim 1 wherein the fluoropolymer is selected from a fluoroelastomer and a fluoroplastic.
22. The composition of claim 1 further comprising an additional curative, optionally wherein the additional curative is selected from ammonia-generating compounds, substituted triazine derivatives, unsubstituted triazine derivatives, peroxides, bis-aminophenols, bis-amidooximes, and organotin compounds.
- 20 23. An article comprising the fluoropolymer composition of claim 1, which may be shaped.
24. The composition of claim 1 further comprising a fluoropolymer having interpolymerized units derived from monomers selected from the group consisting of perfluoroolefins, partially-fluorinated olefins, non-fluorinated olefins, vinylidene fluoride, perfluorovinyl ethers, and combinations thereof.
- 25 25. The composition of claim 24 further comprising a curative material selected from ammonium salts, ammonia-generating compounds, substituted triazine derivatives,

unsubstituted triazine derivatives, peroxides, amidines, bis-aminophenols, bis-amidooximes, and organotin compounds; and optionally a coagent.

26. The composition of claim 25 wherein the coagent is selected from triallyl cyanurate; triallyl isocyanurate; tri(methylallyl) isocyanurate; tris(diallylamine)-*s*-triazine; triallyl phosphite; 5 N,N-diallyl acrylamide; hexaallyl phosphoramide; N,N,N',N'-tetraalkyl tetraphthalamide; N,N,N',N'- tetraallyl malonamide; trivinyl isocyanurate; 2,4,6-trivinyl methyltrisiloxane; and tri(5-norbornene-2-methylene)cyanurate.

27. The composition of claim 24 wherein the additional fluoropolymer includes 10 interpolymerized units containing a halogen that is capable of participation in a peroxide cure reaction and wherein the additional curative is a peroxide, and optionally further comprising a triallyl cyanurate coagent.

28. A perhalogenated elastomer article comprising:  
a reaction product of a fluoropolymer comprising interpolymerized units derived from a nitrogen-containing cure site monomer; and a curative comprising a compound having the 15 general formula X-Y(-Z)<sub>n</sub>, wherein X is a moiety of Formula I:



wherein A is NHNH<sub>2</sub> or NHOH and wherein each R is H or an alkyl, alkenyl, aryl, alkaryl, or alkenylaryl group, Y is a bond or a linking group, Z is H or an alkyl, alkenyl, aryl, alkaryl, or alkenylaryl group, which may be non-fluorinated, partially-fluorinated, or perfluorinated, or a moiety according to Formula I, which may be the same or different than X, and n is an integer from 1 to 3; or a salt of said compound, or precursors of said salt provided separately or as a mixture.

20  
29. The article of claim 28 wherein the article is a gasket, tube, hose, seal, or o-ring.

30. The article of claim 28 wherein the curative is a reaction product of nitrile and 25 hydroxylamine or hydrazine, which optionally is fluorinated or perfluorinated.

31. A method of making a fluoropolymer composition comprising:

- (a) forming a mixture comprising a composition according to claim 1;
- (b) shaping the mixture;
- (c) curing the shaped mixture; and optionally
- (d) heat aging the cured mixture.

5      32. The method of claim 31 wherein the curative is a reaction product of nitrile and hydrazine or hydroxylamine, which optionally is fluorinated or perfluorinated.

33. The method of claim 32 wherein the nitrile and hydrazine or hydroxylamine precursors are added to the mixture.